

**SYSTEMATIC STUDY OF THE *DALEA NANA* COMPLEX
(FABACEAE)**

Billie L. Turner

Plant Resources Center
The University of Texas,
Austin, TX 78712
billie@uts.cc.utexas.edu

ABSTRACT

The late Rupert Barneby (1977) rendered an excellent systematic treatment of *Dalea nana* Torr. in which the complex was treated as being but a single species having two, essentially sympatric, infraspecific taxa: var. *nana* and var. *carnescens* (Rydb.) K. & P. However, he suggested that the two populational systems might ultimately be treated as distinct species. The present populational study confirms the prescience of Rupert's observation and the var. *carnescens* is herein treated at the specific level as ***Dalea rubescens* Wats.**, a name first proposed for the taxon in 1882, this typified from material collected by Charles Wright in Trans-Pecos, Texas. Distribution maps of both taxa are presented, along with a discussion of the characters that separate them. *Phytologia* 93(2)181- 184 (August 1, 2011)

KEY WORDS: *Dalea*, *D. nana*, *D. n. var. carnescens*, *D. n. var. nana*, Texas, Mexico

Key to species [largely adapted from Barneby (1977)]

- 1. Spikes relatively loose, at least in age; bracts mostly broadly ovate to elliptic-acuminate, mostly 1-2 times as long as wide; substrates mostly non-calcareous or sandy (rarely not).....**D. nana**
- 1. Spikes densely congested and cone-like; bracts lanceolate to ovate-lanceolate, mostly 3-5 times as long as wide; substrates calcareous, non-arenaceous (rarely not).....**D. rubescens**

DALEA NANA Torr. ex A. Gray, Mem. Amer. Acad. 11, 4 (Pl. Fendler 1): 31. 1849.

TYPE: OKLAHOMA. CIMARRON CO.: "Willow Bar on the Cimarron." 28 Aug 1847, *Fendler 130* (GH) [data from Shaw, 1982].
Parosela nana (Torr.) A. Heller

Barneby (1977) presented an exceptional analysis of the *D. nana* complex nearly all of which I agree with, except as to nomenclatural bestowals. He aptly noted that:

Racial differentiation in var. *nana* is apparently still active, expressed in small size-differences in the spikes and in length of the bracts, calyx-teeth, and androecia. Material from the upper Arkansas (nomenclaturally typical) and thence southwest to Rio Grande and on, sporadically, into extreme southeast Arizona, has relatively thick spikes (10-13 mm diam), long bracts (3.5-5.5 mm) and calyx-teeth (2.6-4.2 mm), and long androecia (mostly 8-10 mm). The populations on the Coastal Plain in southern Texas and adjoining Mexico, extending into central Texas, have narrower spikes (mostly 7-9 mm diam), correspondingly short bracts (2.5-4, rarely 4.5 mm), calyx teeth (2.2-3.4, rarely 3.8 mm), and androecia (6-8 mm). These differences represent, however, trends rather than accomplished modifications, coinciding for the most part with different life-zones, but are not yet fully established.

My study of the herbarium specimens at LL-TEX, SRSC largely confirm the observations of Barneby, and one might make a case for the recognition of an infraspecific category for the more southern populations of *D. nana*, with emphasis upon the characters called to the fore by Barneby, nearly all of these intergrading to some extent with the more typical, northwestern populations of the taxon. At least I could see little point in constructing varietal names for the populations concerned, but it will be interesting to see what DNA data might suggest.

DALEA RUBESCENS Wats., Proc. Amer. Acad. Arts 17: 369. 1882.
LECTOTYPE: TEXAS. JEFF DAVIS CO.: Limpia Pass, NE of Fort
Davis, Aug 1849, *Charles Wright 124* (GH).

Parosela carnescens Rydb.

Parosela elatior Vail, nom. illeg.

Parosela lesueurii Tharp & Barkley

Dalea nana var *elatior* A. Gray ex B.L. Turner, nom. illeg. (cf. Barneby
1977)

Dalea nana var. *carnescens* (Rydb.) K. & P.

Dalea whitehouseae Tharp & Barkley

Barneby (1977) notes that “Where it invades the territory of
var. *nana*, as in the lower Rio Grande valley and in contiguous south
corners of Arizona and New Mexico, the two forms remain, whenever I
have seen them, segregated by soil preference, var. *carnescens* always
on limestone rubble, caliche, or gypsum, and var. *nana* on acidic or
neutral sands.”

After a lengthy discussion of the variability of the varieties
nana and *carnescens*, Barneby (1977) concluded, “It is possible that
they should be recognized as distinct species, but (as mentioned above)
occasional morphological intermediates occur, difficult to assign to
variety (but none, as yet, accompanied by habitat data).”

After considerable populational studies in central and Trans-
Pecos, Texas I conclude that the two taxa concerned should be
recognized at the specific level. Populations are readily identified, and
when the two taxa are in close proximity they appear not to intergrade
as a result of current hybridization, although it is possible that such
might be found with more inclusive investigation. It is likely that
ancient hybridization between the two taxa has occurred, this
accounting for those plants that I assumed were possible extant hybrids
of *D. nana* with *D. aurea*, (Turner 1959), this called to the fore by
Barneby (1977).

According to Barneby, the species is named for the tendency
of the yellow petals to turn fleshy pink or reddish upon drying. It is
most readily recognized by its bracts, which are lanceolate and mostly
2.5-5.0 times as long as wide (vs broadly ovate and mostly 2.0-2.5

times as long as wide.), these nicely illustrated in Shinners and Mahler's Illustrated Flora of North Central Texas.

ACKNOWLEDGEMENTS

Distribution maps are based upon specimens on file at BRIT, SRSC and LL-TEX, for which I am grateful, supplemented by appropriate distributional data on the web pages (mainly USDA). Guy Nesom kindly reviewed the paper and offered helpful suggestions.

LITERATURE CITED

- Barneby, R.C. 1977. *Dalea*, in *Daleae imagines*. Mem. New York Bot. Gard. 27: 135-587.
- Shaw, E.A. 1982. Augustus Fendlers collection list: New Mexico, 1846-1847. Contr. Gray Herb. 212: 1-70.

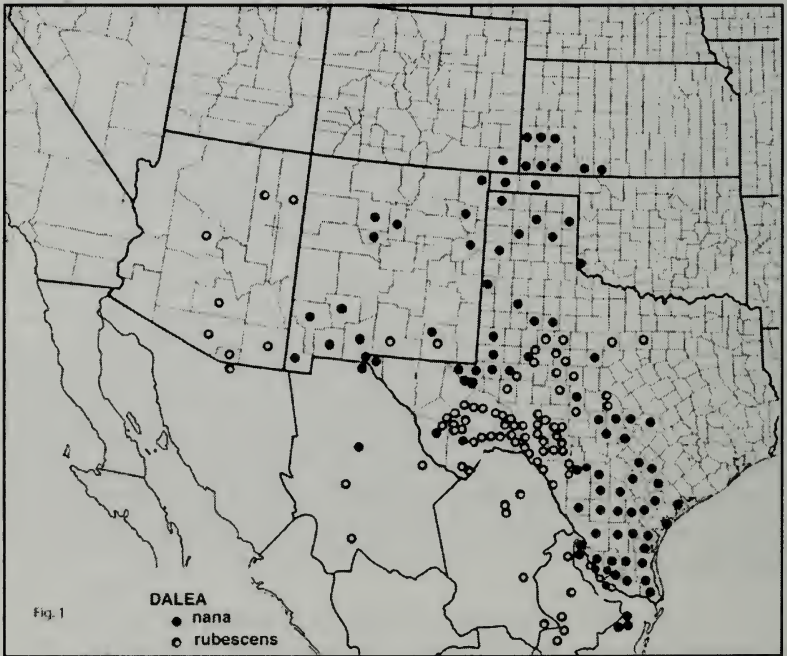


Fig. 1. Distribution of *Dalea nana*.